

PELVIC FLOOR HEALTH DURING AND AFTER PREGNANCY



Presented by: Kendra L. Harrington, MS, PT

Pregnant Soldiers Workshop

Walter Reed Army Medical Center

25 March 2004

Congratulations on your exciting news! This packet is intended to assist you during and after pregnancy in preventing common "side effects" of the childbearing years with respect to the pelvic floor. By now you probably have received a lot of information highlighting the importance of your health during pregnancy, nutritional guidance, and birthing expectations. You most likely have gained some knowledge on the importance of exercise during pregnancy and may have been provided with a review of appropriate stretches and aerobic-type activities. However, you could be completely unaware about the vital role a certain group of muscles serves, and how they are impacted by pregnancy. These muscles are the pelvic floor muscles.

ANATOMY

Let us take some time to review the anatomy of the pelvic floor muscles so we can better understand the function they serve. As you can see in Figure 1, the pelvic floor muscles (known as the levator ani muscles) attach from the pubic bone in the front of the body (you can feel the pubic bone at the top of the vagina under the pubic hair), all the way to the back of the body where they connect to the tail bone (coccyx bone). They also extend from the vagina and rectum out to the ischial tuberosities (better known as the "sit bones" in your buttocks). In addition, these muscles wrap directly around the openings to your urethra (where urine passes), your vagina, and your anus. With these attachments, the pelvic floor muscles form a sling, or bowl, between your legs. This sling serves three main functions:

1. Supportive: the pelvic floor muscles must be strong enough to hold up your bladder, uterus, and rectum, all of which sit directly on top of the muscle sling. These organs are under a great deal of stress from gravity pushing down on them all day long when you are either sitting or standing. If your pelvic floor muscles are weak, your organs are at risk of dropping, known as a *prolapse*.
2. Sphincteric: this refers to the pelvic floor muscles as they wrap around the openings of the urethra and anus. There must be enough strength within these muscles to keep those openings closed between trips to the bathroom (either to urinate or have a bowel movement). When weakness occurs in this aspect of the muscle, you may find that you leak urine or fecal matter when you perform an activity like laughing, coughing, sneezing, or jumping. You may also find that you are unable to hold your urine **or** feces until you can get to the toilet, if a strong urge to go is present.
3. Sexual: the pelvic floor muscles need to have the ability to expand and contract during sexual penetration. At the same time, these muscles form the female genitalia including the clitoris. With this in mind, you can see how the pelvic floor muscles also control sexual arousal and erection of the clitoris, which controls vaginal lubrication during intercourse.

So, if you do not exercise the muscles of the pelvic floor to maintain its health, you increase your risk of developing incontinence (of either urine, feces, or both), and/or sexual dysfunctions. These dysfunctions of the pelvic floor can occur to women of any and all ages.

EFFECTS OF PREGNANCY ON THE PELVIS

Due to an increase of hormones during pregnancy, more specifically relaxin, many women experience laxity, or looseness, of the ligaments that connect the bones. This laxity is required to enable the pelvis to relax and open wider during vaginal delivery. These hormonal changes can last up to 4-6 weeks or longer after delivery, or until breastfeeding is discontinued. In addition, the weight of the baby in the uterus sits directly on the bladder causing increased urinary frequency both during the day, and at nighttime. The increased nighttime urinary frequency (called nocturia) is due to an increase in the amount of fluid build up in the legs during the day. When a woman lays in bed at night, that fluid is able to return the core of the body and filters through the kidneys to be eliminated in the urine. The combination of joint laxity and pressure on the bladder is the reason why a significant number of pregnant females begin to develop incontinence.

With respect to urinary incontinence, there are three main types:

1. Stress incontinence: a leakage of urine that occurs when you laugh, cough, sneeze, **or** jump. Any activity that increases abdominal pressure causes the pressure to push down onto the bladder, forcing urine past a weak muscle.
2. Urge incontinence: a leakage of urine that occurs with the onset of a sudden, severe urge to urinate and the individual is unable to make it to the toilet in time.
3. Mixed incontinence: a combination of stress and urge incontinence (*most common **in** pregnancy)

A Few Points to Remember About Incontinence:

- The age of a pregnant woman has no major impact on the risk of developing incontinence
- Incontinence can begin at any time during the pregnancy, or just after delivery (either vaginally or cesarean)
- If earlier damage is left untreated, additional damage is done to the pelvic floor muscles with each subsequent pregnancy, thereby increasing the woman's risk of developing incontinence
- The larger the baby, the greater the risk of incontinence
- The longer the labor, the greater the stress on the pelvic **floor** muscles, increasing the risk of incontinence
- The use of forceps or vacuum extraction of the baby during delivery adds trauma to the pelvic floor muscles, which increases the risk of incontinence
- If breastfeeding, estrogen hormone levels remain low (estrogen is needed in order for the nerves of the bladder neck and urethra sphincter in order to work properly); therefore, the risk for incontinence continues. (Estrogen levels will rise again once ovulation resumes)
- Due to nerve damage during delivery, and the soreness of the pelvic region after birth, the protective reflex of the pelvic floor muscles that occurs prior to coughing, sneezing, etc. is lost, and unless these muscles are actively contracted to regain the neurological signals, incontinence could continue. (This nerve damage may not be noticeable immediately following birth; if left untreated, incontinence symptoms may develop years later as pelvic floor weakness progresses)

BENEFITS OF PREGNANCY ON THE PELVIC FLOOR

So, what are the positive effects of pregnancy on the pelvic floor?

- Due to an increased blood flow that occurs during pregnancy, arousal zones within the female have increased sensitivity, resulting in a better orgasm
- After delivery, menstrual pain is less severe than pain levels prior to pregnancy. This is attributed to the fact that menstrual pain is sensed by prostaglandin (a hormone), and childbirth eliminates some receptor sites for this hormone.
- If you suffer from endometriosis, pregnancy slows tissue growth, thereby decreasing endometrial pain.

PELVIC FLOOR MUSCLE STRENGTHENING: "KEGELS"

How can we decrease the chances of developing incontinence during pregnancy? The pelvic floor muscles can be strengthened just like any other muscle in the body. The strengthening exercise for the pelvic floor muscles is called "Kegels", (named after Dr. Arnold Kegel, who developed the technique in the 1940's). Now, where do you begin?

1. Identify the Pelvic Floor Muscles: in order to strengthen the pelvic floor muscles, you will need to know how to contract these muscles correctly. It is important to make sure you are contracting the muscles in and up towards you head. You never want to bear down on these muscles (as if you were straining during a bowel movement). To identify these muscles and their contraction you can try several methods:
 - a. Stop Test: sit on the toilet with your legs spread wide apart. Begin urinating, and at midstream pull up on the pelvic floor muscles to clamp down and close the urethra. The muscle may not be strong enough to completely stop the flow of urine, but you should at least hear the stream slowing down. Hold this contraction for a brief moment and then release the muscles to complete urination.

***Note:** do not perform this stop test on a regular basis or as a daily activity. Only use this test as an occasional assessment of the muscles.

- b. Observation: while reclining on your back in bed, bend your knees up and place your feet on the bed. Use a hand held mirror and watch the movement of the vagina as you contract the pelvic floor muscles. When contracting the muscles correctly, you should see the vaginal tissue move slightly towards the inside (a puckering movement of the vagina and anus).
- c. Palpation: while reclining on your back in bed with your knees bent up; insert one or two clean fingers into your vaginal opening. Then, contract your pelvic floor muscles. You should feel the muscles clamp down around your fingers and begin to pull your fingers in and up towards your head. While your fingers are inside your vagina, try bearing down on the muscles as if you were having a difficult bowel movement. The motion you will feel is the exact opposite to that of a pelvic floor muscle contraction/exercise.

2. What to Remember When Doing Kegels:

- a. Avoid holding your breath
- b. Do not push/bear down through the muscles
- c. You may feel your anus puckering up, which is a normal event due to the attachment of the muscle sling around the vagina and anus. However, avoid contracting the muscles of your stomach, inner thighs, and buttocks.

***Hint:** to limit involvement of these accessory muscles when performing Kegels in the standing position, stand with your legs apart and your feet turned inward. Once you are able to perform these Kegels without accessory muscle use, you will find that you can stand comfortably.

***Note:** When performing a pelvic floor muscle contraction correctly, you should not see any outward body movement, since the pelvic floor muscles are an internal group of muscles.

3. Types of Kegels:

- a. Slow Kegels: this exercise works on the supportive function of the muscle group. Contract the pelvic floor muscles and hold this position. The length of time required to hold this muscle contraction initially varies from person to person. To figure out how long you should hold these muscles, count how many seconds you can either stop the flow of urine during the stop test, or how long you feel the contraction when your fingers are inserted into your vagina. That number is your maximum holding time. You will hold each slow kegel for that many seconds, and then rest for the same number of seconds. (Example: Hold for 3 seconds, rest for 3 seconds) You should perform 50-80 of these kegels while either sitting or standing throughout the day.

***Note:** Do not do all of the kegels in one session, as these muscles fatigue quickly. Each week, reassess your holding time and increase your hold until you are able to perform a 10 second hold.

- b. Quick Kegels ("Flicks"): now perform 10 kegels as fast as you can (contract and relax without pausing). Repeat this for 10 sessions throughout each day. It is best if you can associate these groups of quick kegels to an activity in order to help you remember to do them. (Example: washing your hands, sitting in your car at a red light, at each commercial break while watching TV)
- c. Elevator Kegels: think of your pelvic floor muscles as an elevator that stops on each floor. Practice contracting your pelvic floor muscles slowly and pausing briefly at each intensity level. Once you have reached the maximum contraction, slowly release these muscles, pausing briefly at each intensity level on the way down.

BENEFITS OF PERFORMING KEGELS

You are probably thinking that these exercises seem cumbersome. So, why should you perform them?

- Prevent/reduce the symptoms of incontinence
- Kegels increase the vaginal muscle tone and elasticity (ability of the muscles to stretch) in order to prepare for delivery

*Some people believe that strengthening the pelvic floor muscles will make delivery more difficult; **this is simply not true**

- Increase the pelvic floor muscle strength, which results in a stronger orgasm (an orgasm is actually a sustained kegel contraction!)
- Some studies suggest that stronger pelvic floor muscles can enhance chances of having a vaginal delivery instead of a cesarean delivery
- Prevent possible surgery later in life to reposition organs that have "dropped" due to weak pelvic floor muscles
- Kegel exercises help to increase the blood flow *to* the pelvic floor and decrease the pooling of blood *on* the pelvic floor. Therefore, these exercises help decrease a pregnant woman's feelings of pelvic pressure, heaviness, soreness, or tenderness in the pelvic region.
- Performing kegels while pregnant will help overstretched muscles spring back into place following delivery

***Note:** don't be discouraged if you do not see an improvement in your symptoms or strength during pregnancy. These muscles are under a lot of stress and are being influenced by hormonal changes. Your work will pay off later!

***Note:** kegels do not just address female issues. Studies have found that kegels can decrease a man's chances of developing prostate problems, so why not perform them together!

BENEFITS OF PERFORMING KEGELS AFTER CHILDBIRTH

- No matter what type of delivery you have had, you will want to begin your pelvic floor muscle exercises about 24 hours after delivery, unless your doctor tells you otherwise. This serves to help the healing of the vaginal region and hemorrhoids. Just remember to start off gently for the first few weeks while healing is occurring.
- Kegels help heal the vaginal tissues if an episiotomy was performed, or if stitching was needed due to a tear
- Kegels help to tighten the overstretched muscles from childbirth
- Kegels help decrease bruising and swelling of the vaginal tissues
- Kegels help enhance sexual arousal and achieve an orgasm after childbirth

HOW TO REMEMBER TO PERFORM KEGELS AFTER DELIVERY

Unfortunately kegels are a lifelong commitment that needs to be performed on a daily basis throughout your lifetime. After the birth of your baby, your focus of care will ultimately be on your child, and your own health issues can easily be neglected. In order to keep up with your kegel exercises, link them to activities such as:

- Every time you feed your child
- In the shower
- Washing your hands
- Brushing your teeth
- Changing your baby's diaper

Place exercise reminders around your home or car, such as notes or stickers on the bathroom mirror, on your nightstand, on the baby's changing table, on the refrigerator, or on the dashboard of your car.

*Again, remember that if you are breastfeeding, your estrogen levels remain low. Therefore, improvement in your symptoms or strength of the pelvic floor muscles may not be noticed. At this stage, prevention of your symptoms, or strength, from getting worse is your goal.

CARE OF YOUR PELVIC FLOOR AFTER VAGINAL DELIVERY

1. Pain/Swelling

- do not use heat on your perineum (vaginal area)
- Kegels will help decrease bruising by increasing blood flow to the pelvic floor (perform kegels gently if stitches are present from a vaginal tear or episiotomy after childbirth)
- Keep your vaginal region clean by using mild soap and water (rinse/wipe vagina from front to back)
- Rinse your vaginal tissues after each urination while sitting on the toilet
- (moistening some toilet tissue and gently wipe the vaginal region from front **to** back, or use a squirt bottle to rinse water over the vaginal region)
- Pat the vaginal area dry after urinating
- Ask a nurse for an ice pack and apply to vaginal tissues for 20 minutes (repeat every 4 hours as needed)
- Lay down as often as possible to eliminate the affect of gravity on your organs and pelvic floor. Doing kegels in this position eases the pressure on the pelvic floor muscles and makes kegels easier to perform.
- Take a sitz bath to decrease perineal pain
- Apply topical anesthetics/ointments per doctor's approval
- Use "Tucks" compresses (also known as Witch Hazel)
- Walk slowly and limit stair climbing
- If sitting is uncomfortable, try sitting on a pillow that has a cut out to relieve pressure from the vaginal tissues (see Figure 2)

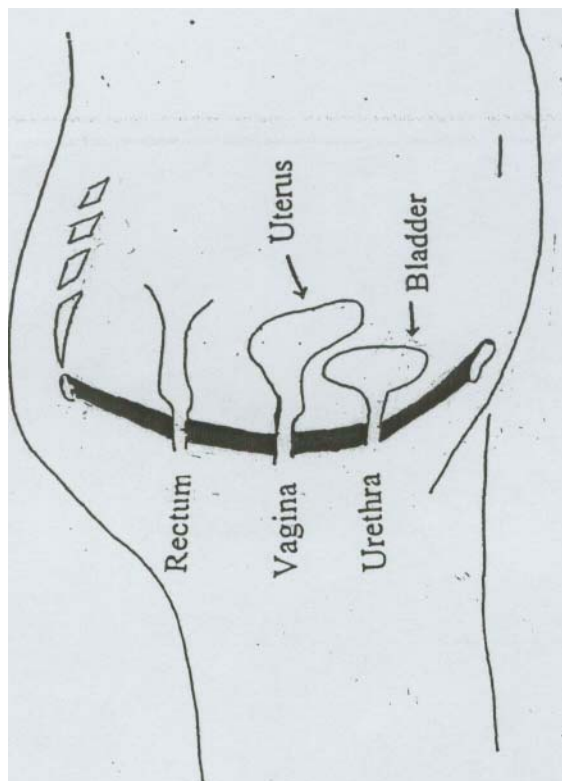
- Usually urinating in the shower with the water running over vaginal tissues helps to decrease pain and burning of vaginal tissues
- 2. Bowel Movements/Hemorrhoids:
 - Performing gentle kegels will help to decrease hemorrhoids
 - Pain from hemorrhoids can be relieved with topical anesthetics/ointments as well as "tucks" compresses
 - Keep bowel movements as soft as possible by drinking plenty of fluids, and eat foods high in bulk, such as whole grains, fruits, bran, prune juice, raw vegetables. Also, ask your physician about the use of a stool softener, laxative, suppository, or enema.
 - Anticipate that you may not have a bowel movement for the first 5 days after delivery. This is secondary to the slowing affect that occurs with your digestive system during childbirth.
 - Ease the pain from your first bowel movement by bracing your perineum. Glove your hand (or use toilet tissue or a sanitary napkin) and while using two fingers, apply mild pressure to the skin that separates your vaginal opening and your anal opening. Avoid bearing down; try to relax your pelvic floor muscles instead.
 - Try putting your feet on a step stool while sitting on the toilet. This helps align the rectal angle, increases the relaxation of the pelvic floor muscles, which ultimately facilitates having a bowel movement.
 - Prevent your hemorrhoids from being torn during a bowel movement by using two fingers as noted above, and gently move the hemorrhoids out of the way from the anal opening

Should you have any questions or concerns on the topics provided in this packet, or if you would like to schedule a consult appointment, please feel free to contact Kendra L. Harrington, MS, PT, the Pelvic Floor Physical Therapist at Walter Reed Army Medical Center, at 202-782-5716.

FIGURE 1
WALTER REED ARMY MEDICAL CENTER DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY DIVISION OF UROGYNECOLOGY
PELVIC FLOOR PHYSICAL THERAPY SERVICES

1. The muscles of the pelvic floor create a "sling" from the pubic (front) area to the coccyx (tailbone). They also form a "figure 8" configuration around orifices (openings of the rectum, vagina, bladder tube).
2. There are several portions of the pelvic diaphragm musculature. The portion to focus on is the Levator Ani muscles. These muscles help elevate or lift the pelvic floor and resist intra-abdominal pressure.
3. The Levator Ani muscles are the primary focus for strengthening and relaxation in incontinence and pelvic pain disorders.
4. The pelvic floor muscles have 3 important functions:
 - Supportive* - Acts as a shelf and helps maintain position for internal organs. Works with the lower abdominals (stomach muscles) and diaphragm (breathing muscle beneath rib cage) to help reduce forces on the pelvic contents.
 - Sphincteric* - Helps close the urethra (bladder tube) and rectum (anus) and aids in continence.
 - Sexual* - Change in laxity and tension can affect sexual activity.

Diagram of the Pelvic Floor:



Pelvic Floor Muscles
(Levator Ani Muscles)
(shaded area)

Figure 2
**WALTER REED ARMY MEDICAL CENTER DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY DIVISION OF UROGYNECOLOGY
PELVIC FLOOR PHYSICAL THERAPY SERVICES**

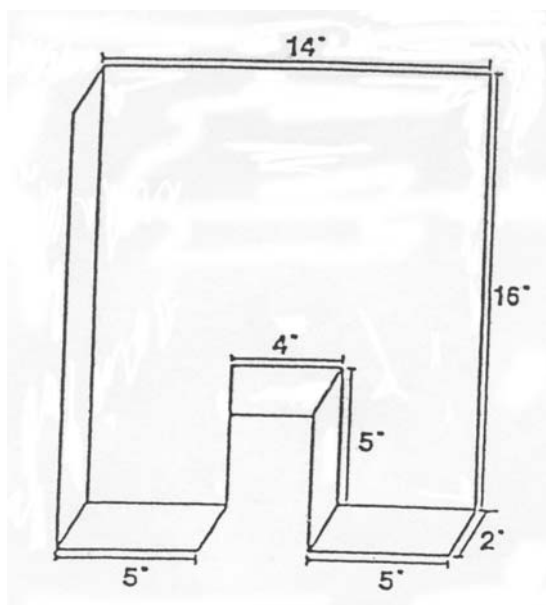
To reduce coccygeal or vaginal pain:

- Sit with good posture
- Try to take a break from prolonged sitting (stand, stretch, walk)
- Try utilizing a seat cushion to un-weight or decrease the weight bearing forces on the urogenital area (see below)

Coccygeal pillow or "Ish-Dish"-

- You will need 1 ½ to 2 inch thick foam rubber (can be purchased at a fabric store)
- The foam rubber should measure 16 by 14 inches
- Cut out small 4 by 5 inch section as described below and sit with urogenital area in this open region

Diagram of pillow



Coccygeal pillow. This item can be easily cut from 1 ½ to 2 inch thick foam rubber and measures 16 by 14 inches. The patient sits on the pillow, with the coccyx over the 4 by 5 inch opening.